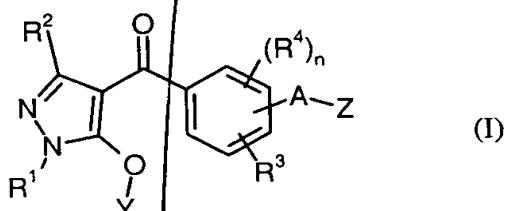


Patent Claims

1. Substituted benzoylpyrazoles of the general formula (I),



in which

n represents the numbers 0, 1, 2 or 3,

A represents a single bond or represents alkanediyl (alkylene),

R¹ represents in each case optionally substituted alkyl, alkenyl, alkynyl or cycloalkyl,

R² represents hydrogen, cyano, carbamoyl, thiocarbamoyl, halogen, or represents in each case optionally substituted alkyl, alkoxy, alkylthio, alkoxy carbonyl or cycloalkyl,

R³ represents hydrogen, nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, or represents in each case optionally substituted alkyl, alkoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, alkylamino, di-alkylamino or dialkylaminosulfonyl,

R⁴ represents nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, or represents in each case optionally substituted alkyl, alkoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, alkylamino, dialkylamino or dialkylaminosulfonyl,

Y represents hydrogen or represents in each case optionally substituted alkyl, alkylcarbonyl, alkoxy carbonyl, alkylsulfonyl, alkylamino carbonyl, dialkylaminocarbonyl, alkenyl, alkenylcarbonyl, alkenylsulfonyl, alkinyl, alkinylcarbonyl, cycloalkyl, cycloalkylcarbonyl, cycloalkylalkyl, phenylcarbonyl, phenylsulfonyl, phenylalkyl or phenylcarbonylalkyl, and

Z represents an optionally substituted 4- to 12-membered saturated or unsaturated monocyclic or bicyclic heterocyclic grouping which contains 1 to 4 heteroatoms (up to 4 nitrogen atoms and optionally - alternatively or additionally one oxygen atom or one sulfur atom, or an SO grouping or an SO₂ grouping) and which additionally contains one to three oxo groups (C=O) and/or thioxo groups (C=S) as component of the heterocycle,

including all possible tautomeric forms and the possible salts.

2. Compounds according to Claim 1, characterized in that

n represents the numbers 0, 1 or 2,

A represents a single bond or represents alkanediyl (alkylene) having 1 to 4 carbon atoms,

R¹ represents optionally cyano-, carboxyl-, carbamoyl-, halogen-, C₁-C₄-alkoxy-, C₁-C₄-alkyl-carbonyl-, C₁-C₄-alkoxy-carbonyl-, C₁-C₄-alkyl-thio-, C₁-C₄-alkylsulfinyl- or C₁-C₄-alkylsulfonyl-substituted alkyl having 1 to 6 carbon atoms, represents in each case optionally cyano-, carboxyl-, carbamoyl-, halogen- or C₁-C₄-alkoxy-carbonyl-substituted alkenyl or alkinyl having in each case 2 to 6 carbon atoms, or

		represents optionally cyano-, carboxyl-, carbamoyl-, halogen-, C ₁ -C ₄ -alkyl- or C ₁ -C ₄ -alkoxy-carbonyl-substituted cycloalkyl having 3 to 6 carbon atoms,
5	R ²	represents hydrogen, cyano, carbamoyl, thiocarbamoyl, halogen, represents in each case optionally cyano-, halogen- or C ₁ -C ₄ -alkoxy-substituted alkyl, alkoxy or alkoxy carbonyl having in each case up to 6 carbon atoms, represents optionally halogen-substituted alkylthio having 1 to 6 carbon atoms, or represents optionally cyano-, halogen- or C ₁ -C ₄ -alkyl-substituted cycloalkyl having 3 to 6 carbon atoms,
10		R ³ represents hydrogen, nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, represents in each case optionally halogen, C ₁ -C ₄ -alkoxy-, C ₁ -C ₄ -alkylthio-, C ₁ -C ₄ -alkylsulfinyl- or C ₁ -C ₄ -alkylsulfonyl-substituted alkyl, alkoxy, alkylthio, alkylsulfinyl or alkylsulfonyl having in each case up to 4 carbon atoms in the alkyl groups, or represents alkylamino, dialkylamino or dialkylaminosulfonyl having in each case up to 4 carbon atoms in the alkyl groups,
15	R ⁴	represents nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, represents in each case optionally halogen-, C ₁ -C ₄ -alkoxy-, C ₁ -C ₄ -alkylthio-, C ₁ -C ₄ -alkylsulfinyl- or C ₁ -C ₄ -alkylsulfonyl-substituted alkyl, alkoxy, alkylthio, alkylsulfinyl or alkylsulfonyl having in each case up to 4 carbon atoms in the alkyl groups, or represents alkylamino, dialkylamino or dialkylaminosulfonyl having in each case up to 4 carbon atoms in the alkyl groups,
20	Y	represents hydrogen, represents in each case optionally cyano-, carboxyl-, carbamoyl-, halogen- or C ₁ -C ₄ -alkoxycarbonyl-substituted alkyl, alkylcarbonyl or alkoxy carbonyl having in each case up to 6 carbon atoms, represents in each case optionally halogen-substituted
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30		

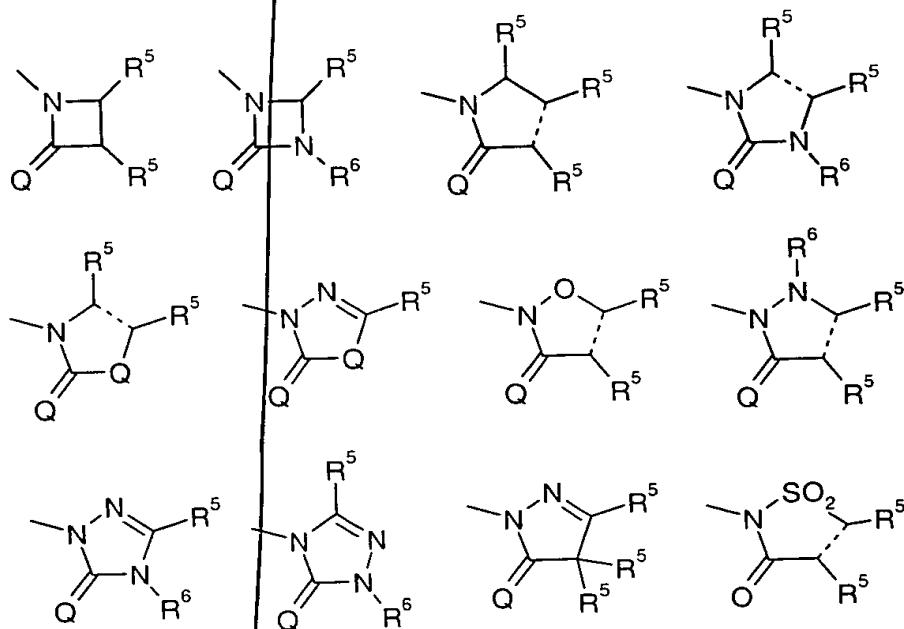
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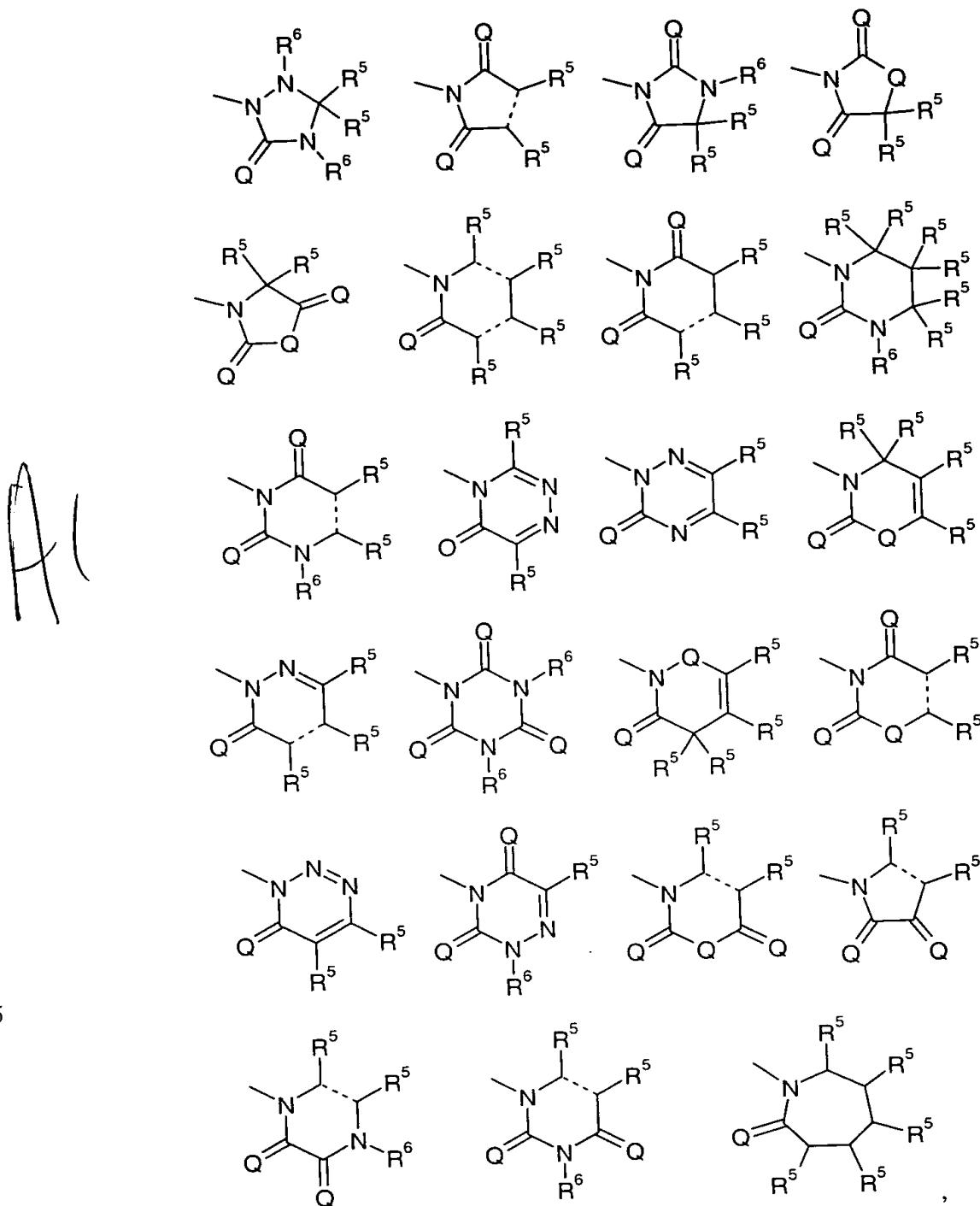
10
H I

15

Z represents one of the heterocyclic groupings below

20





in which in each case the broken bond is a single bond or a double bond,

Q represents oxygen or sulfur,

5 R⁵ represents hydrogen, hydroxyl, mercapto, cyano, halogen, represents in each case optionally cyano-, halogen-, C₁-C₄-alkoxy-, C₁-C₄-alkylthio-, C₁-C₄-alkylsulfinyl- or C₁-C₄-alkylsulfonyl-substituted alkyl, alkylcarbonyl, alkoxy, alkoxy-carbonyl, alkylthio, alkylsulfinyl or alkylsulfonyl having in each case up to 6 carbon atoms in the alkyl groups, represents propadienylthio, represents in each case optionally halogen-substituted alkylamino or dialkylamino having in each case up to 6 carbon atoms in the alkyl groups, represents in each case optionally halogen-substituted alkenyl, alkinyl, alkenyloxy, alkenylthio or alkenylamino having in each case up to 6 carbon atoms in the alkenyl or alkinyl groups, represents in each case optionally halogen-substituted cycloalkyl, cycloalkyloxy, cycloalkylthio, cycloalkylamino, cycloalkylalkyl, cycloalkyl-alkoxy, cycloalkylalkylthio or cycloalkylalkylamino having in each case 3 to 6 carbon atoms in the cycloalkyl groups and optionally up to 4 carbon atoms in the alkyl moiety, represents in each case optionally halogen-, C₁-C₄-alkyl- or C₁-C₄-alkoxy-substituted phenyl, phenoxy, phenylthio, phenyl-amino, benzyl, benzyloxy, benzylthio or benzylamino, represents pyrrolidino, piperidino or morpholino, or - if two adjacent radicals R⁵ and R⁵ are located on a double bond - together with the adjacent radical R⁵ also represents a benzo grouping, and

10 *M*

15

20

25

30 R⁶ represents hydrogen, hydroxyl, amino, alkylideneamino having up to 4 carbon atoms, represents in each case optionally halogen- or C₁-C₄-alkoxy-substituted alkyl, alkoxy, alkyl-amino, dialkylamino or alkanoylamino having in each case up

to 6 carbon atoms in the alkyl groups, represents in each case
optionally halogen-substituted alkenyl, alkinyl or alkenyloxy
having in each case up to 6 carbon atoms in the alkenyl or
alkinyl groups, represents in each case optionally halogen-
substituted cycloalkyl, cycloalkylalkyl or cycloalkylamino
having in each case 3 to 6 carbon atoms in the cycloalkyl
groups and optionally up to 3 carbon atoms in the alkyl moiety,
or represents in each case optionally halogen-, C₁-C₄-alkyl- or
C₁-C₄-alkoxy-substituted phenyl or benzyl, or together with an
adjacent radical R⁵ or R⁶ represents optionally halogen- or C₁-
C₄-alkyl-substituted alkanediyl having 3 to 5 carbon atoms,

where the individual radicals R⁵ and R⁶ - if a plurality of these are
attached to the same heterocyclic groupings, may have identical or
different meanings within the scope of the above definition.

3. Compounds according to claim 1 or 2, characterized in that

n represents the numbers 0 or 1,

A represents a single bond, methylene, ethylidene (ethane-1,1-diyil) or
dimethylene (ethane-1,2-diyil).

R¹ represents in each case optionally fluorine-, chlorine-, methoxy-,
ethoxy-, n- or i-propoxy-, methylthio-, ethylthio-, n- or i-propylthio-,
methylsulfinyl-, ethylsulfinyl-, n- or i-propylsulfinyl-, methylsulfonyl-,
ethylsulfonyl-, n- or i-propylsulfonyl-substituted methyl, ethyl, n- or i-
propyl, n-, i-, s- or t-butyl, represents in each case optionally fluorine-,
chlorine- or bromine-substituted propenyl, butenyl, propinyl or
butinyl, or represents in each case optionally cyano-, fluorine-,

chlorine-, bromine-, methyl- or ethyl-substituted cyclopropyl, cyclobutyl, cyclopentyl or cyclohexyl,

5 R² represents hydrogen, cyano, carbamoyl, thiocarbamoyl, represents in each case optionally cyano-, fluorine-, chlorine-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, methoxy, ethoxy, n- or i-propoxy, methoxycarbonyl, ethoxycarbonyl, n- or i-propoxycarbonyl, represents in each case optionally fluorine- and/or chlorine-substituted methylthio, ethylthio, n- or i-propylthio, or represents in each case optionally cyano-, fluorine-, chlorine-, bromine-, methyl- or ethyl-substituted cyclopropyl, cyclobutyl, cyclopentyl or cyclohexyl,

10 R³ represents hydrogen, nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, fluorine, chlorine, bromine, iodine, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-, methylthio-, ethylthio-, n- or i-propylthio-, methylsulfinyl-, ethylsulfinyl-, methylsulfonyl- or ethylsulfonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-substituted methoxy, ethoxy, n- or i-propoxy, represents in each case optionally fluorine- and/or chlorine-substituted methylthio, ethylthio, n- or i-propylthio, methylsulfinyl, ethylsulfinyl, n- or i-propylsulfinyl, methylsulfonyl, ethylsulfonyl, n- or i-propylsulfonyl, or represents methylamino, ethylamino, n- or i-propylamino, dimethylamino, diethylamino, dimethylaminosulfonyl or diethylaminosulfonyl,

15 R⁴ represents nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, fluorine, chlorine, bromine, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-, methylthio-, ethylthio-, n- or i-propylthio-, methylsulfinyl-, ethylsulfinyl-, methylsulfonyl- or

5 ethylsulfonyl-substituted methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, represents in each case optionally fluorine- and/or chlorine-, methoxy-, ethoxy-, n- or i-propoxy-substituted methoxy, ethoxy, n- or i-propoxy, represents in each case optionally fluorine- and/or chlorine-
10 substituted methylthio, ethylthio, n- or i-propylthio, methylsulfinyl, ethylsulfinyl, n- or i-propylsulfinyl, methylsulfonyl, ethylsulfonyl, n- or i-propylsulfonyl, or represents methylamino, ethylamino, n- or i-propylamino, dimethylamino, diethylamino, dimethylaminosulfonyl or diethylaminosulfonyl,

15 R⁵ represents hydrogen, hydroxyl, chlorine, bromine, methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, difluoromethyl, dichloromethyl, trifluoromethyl, trichloromethyl, chlorodifluoromethyl, fluorodichloromethyl, fluoroethyl, chloroethyl, difluoroethyl, dichloroethyl, fluoro-n-propyl, fluoro-i-propyl, chloro-n-propyl, chloro-i-propyl, methoxymethyl, ethoxymethyl, methoxyethyl, ethoxyethyl, methoxy, ethoxy, n- or i-propoxy, n-, i-, s- or t-butoxy, fluoroethoxy, chloroethoxy, difluoroethoxy, dichloroethoxy, trifluoroethoxy, trichloroethoxy, chlorofluoroethoxy, chlorodifluoroethoxy, fluorodichloroethoxy, methylthio, ethylthio, n- or i-propylthio, fluoroethylthio, chloroethylthio, difluoroethylthio, dichloroethylthio, chlorofluoroethylthio, chlorodifluoroethylthio, fluorodichloroethylthio, methylsulfinyl, ethylsulfinyl, n- or i-propylsulfinyl, methylsulfonyl, ethylsulfonyl, n- or i-propylsulfonyl, dimethylamino, propenylthio, butenylthio, propinylthio, butinylthio, cyclopropyl, cyclopropylmethyl, cyclopropylmethoxy, phenyl or phenoxy,

20 R⁶ represents amino, methyl, ethyl, n- or i-propyl, n-, i-, s- or t-butyl, methoxy, ethoxy, methylamino, dimethylamino, cyclopropyl or cyclopropylmethyl, or together with R⁵ represents propane-1,3-diyl

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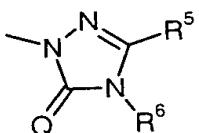
30

(trimethylene), butane-1,4-diyl (tetramethylene) or pentane-1,5-diyl (pentamethylene), and

Y represents hydrogen, represents in each case optionally cyano-, fluorine-, chlorine-, methoxy- or ethoxy-substituted methyl, ethyl, n- or i-propyl, acetyl, propionyl, n- or i-butyroyl, methoxycarbonyl or ethoxycarbonyl, represents in each case optionally fluorine-, chlorine- and/or bromine-substituted methylsulfonyl-, ethylsulfonyl-, n- or i-propylsulfonyl-, n-, i-, s- or t-butylsulfonyl-, methylaminocarbonyl, ethylaminocarbonyl, n- or i-propylaminocarbonyl, dimethylamino-carbonyl or diethylaminocarbonyl, represents in each case optionally fluorine-, chlorine- or bromine-substituted propenyl, butenyl, propenylcarbonyl, butenylcarbonyl, propenylsulfonyl, butenylsulfonyl, propinyl, butinyl, propinylcarbonyl or butinylcarbonyl, represents in each case optionally cyano-, fluorine-, chlorine-, methyl- or ethyl-substituted cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cyclopropylcarbonyl, cyclobutylcarbonyl, cyclopentylcarbonyl, cyclohexylcarbonyl, cyclopropylmethyl, cyclobutylmethyl, cyclopentylmethyl or cyclohexylmethyl, or represents in each case optionally nitro-, cyano-, fluorine-, chlorine-, bromine-, methyl-, ethyl-, n- or i-propyl-, n-, i-, s- or t-butyl-, trifluoromethyl-, methoxy-, ethoxy-, n- or i-propoxy-, difluoromethoxy- or trifluoromethoxy-substituted phenylcarbonyl, phenylsulfonyl, benzyl or phenylcarbonylmethyl.

25 4. Compounds according to any of claims 1 to 3, characterized in that

Z represents the grouping below



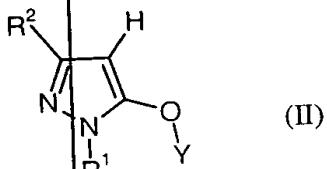
5. Compounds according to any of claims 1 to 4, characterized in that

Q represents oxygen.

5 6. Compounds according to any of claims 1 to 5, characterized in that n
represents O.

7. Process for preparing compounds according to any of claims 1 to 6,
characterized in that

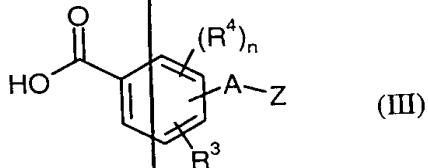
(a) pyrazoles of the general formula (II)



in which

15 R¹, R² and Y are as defined in any of claims 1 to 3,

are reacted with substituted benzoic acids of the general formula (III),



20 in which

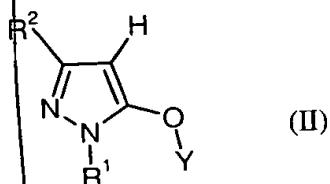
n, A, R³, R⁴ and Z are as defined in any of claims 1 to 6,

25 in the presence of a dehydrating agent, if appropriate in the presence of one or
more reaction auxiliaries and if appropriate in the presence of a diluent,

or that

(b) pyrazoles of the general formula (II)

5

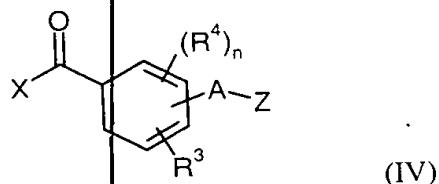


in which

R¹, R² and Y are as defined in any of claims 1 to 3,

are reacted with substituted benzoic acid derivatives of the general formula
(IV)

10



15

in which

n, A, R³, R⁴ and Z are as defined in any of claims 1 to 6, and

X represents cyano, halogen or alkoxy,

20

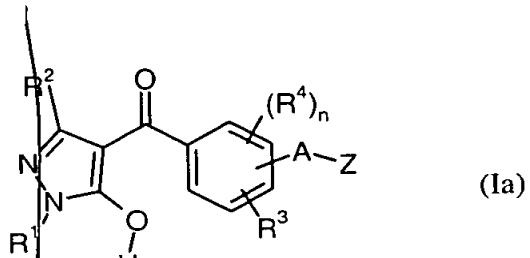
- or with corresponding carboxylic anhydrides -

if appropriate in the presence of one or more reaction auxiliaries and if appropriate in the presence of a diluent,

25

or that

(c) substituted benzoylpyrazoles of the general formula (Ia)



in which

n, A, R¹, R², R³, R⁴ and Z are as defined in any of claims 1 to 6,

are reacted with compounds of the general formula (V)

H-Y (V)

in which

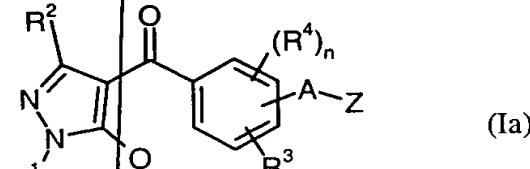
Y is as defined in any of claims 1 to 4, except for hydrogen,

- or, if appropriate, with corresponding isocyanates or isothiocyanates -

if appropriate in the presence of one or more reaction auxiliaries and if
20 appropriate in the presence of a diluent,

and, if appropriate, the resulting compounds of the formula (I) are subsequently subjected in a customary manner to electrophilic or nucleophilic and/or oxidation or reduction reactions within the scope of the definition of the substituents, or the compounds of the formula (I) are converted in a customary manner into salts.

8. Compounds of the general formula (Ia)



in which

n, A, R¹, R², R³, R⁴ and Z are as defined in any of claims 1 to 6.

9. Herbicidal compositions, characterized in that they comprise at least one of the compounds according to any of claims 1 to 6 and customary extenders.

10. Use of at least one compound according to any of claims 1 to 6 for controlling undesirable plants.

R⁴ represents nitro, cyano, carboxyl, carbamoyl, thiocarbamoyl, halogen, or
represents in each case optionally substituted alkyl, alkoxy, alkylthio,
alkylsulfinyl, alkylsulfonyl, alkylamino, dialkylamino or dialkyl-
aminosulfonyl,

Y represents hydrogen or represents in each case optionally substituted alkyl,
alkylcarbonyl, alkoxycarbonyl, alkylsulfonyl, alkylaminocarbonyl, dialkyl-
aminocarbonyl, alkenyl, alkenylcarbonyl, alkenylsulfonyl, alkinyl, alkinyl-
carbonyl, cycloalkyl, cycloalkylcarbonyl, cycloalkylalkyl, phenylcarbonyl,
phenylsulfonyl, phenylalkyl or phenylcarbonylalkyl, and

Z represents an optionally substituted 4- to 12-membered saturated or
unsaturated monocyclic or bicyclic heterocyclic grouping which contains 1 to
4 heteroatoms (up to 4 nitrogen atoms and optionally - alternatively or
additionally - one oxygen atom or one sulfur atom, or an SO grouping or an
SO₂ grouping) and which additionally contains one to three oxo groups
(C=O) and/or thioxo groups (C=S) as component of the heterocycle,

and also to processes for their preparation and to their use as herbicides.